

Claims

1. Use of an implantable or wearable surface or bulk acoustic wave device for monitoring parameters within a human or animal body.

5

2. Use of a device according to claim 1 for monitoring pressure, temperature, viscosity or flow rate within the body.

10

3. Use of a device according to claim 1 for monitoring chemical changes within the body.

15

4. A method of monitoring a parameter of a human or animal body wherein a surface acoustic wave device is implanted therein or attached thereto, wherein the device comprises a pair of interdigitated transducers spaced apart over the surface of a piezo-electric substrate, that is exposed to the parameter, wherein an antenna is connected to one of the interdigitated transducers, wherein a radio-frequency signal is supplied externally of the body to the antenna, is transmitted over the substrate surface to the other of the transducers, reflected therefrom back to the said one of the transducers and transmitted from the antenna thereof to a receiver, whereby comparison of the supplied and received signal provides a measurement of the parameter.

20

25

5. A method of monitoring a parameter of a human or animal body wherein a surface acoustic wave device is implanted therein or attached thereto, wherein the device comprises a pair of interdigitated transducers spaced apart over the surface of a piezo-electric substrate that is exposed to the parameter, wherein a respective antenna is connected to each of the interdigitated transducers, wherein a radio-frequency signal is supplied externally of the body selectively to one of the antennae, is transmitted over the surface of the substrate the associated transducer to the other transducer and is transmitted from the other of the antennae to a receiver, whereby comparison of the supplied and received signal provides a measurement of the parameter.

30

6. A method of monitoring a parameter of a human or animal body wherein a bulk acoustic wave device is implanted therein or attached thereto, wherein the device comprises a pair of interdigitated transducers spaced apart over the surface of a piezo-electric substrate, that is exposed to the parameter, wherein a radio-frequency signal is supplied externally of the body to the antenna, is transmitted over the substrate surface to the other of the transducers, reflected therefrom back to the said one of the transducers and transmitted from the antenna thereof to a receiver, whereby comparison of the supplied and received signals provides a measurement of the parameter.

7. A method of monitoring a parameter of a human or animal body wherein a bulk acoustic wave device is implanted therein or attached thereto, wherein the device comprises a pair of interdigitated transducers spaced apart over the surface of a piezo-electric substrate that is exposed to the parameter, wherein a respective antenna is connected to each of the interdigitated transducers, wherein a radio-frequency signal is supplied externally of the body selectively to one of the antennae, is transmitted over the surface of the substrate from the associated transducer to the other transducer and is transmitted from the other of the antennae to a receiver whereby comparison of the supplied and received signals provides a measurement of the parameter.

8. A method according to any one of the claim 4 to 7, wherein the piezo-electric substrate is responsive to pressure, temperature, viscosity or flow rate within the body.

9. A method according to any one of claims 4 to 8, wherein the parameter is monitored by determination of a delay of the acoustic wave.

10. A method according to any one of claims 4 to 9, wherein the parameter is monitored by determination of the change of resonant frequency of the acoustic wave.

11. A method according to any one of claims 4 to 10, wherein a plurality of said devices is employed arranged to operate at different frequencies.